

US009603271B2

(12) United States Patent Lee et al.

(54) FOLDABLE DISPLAY APPARATUS

(71) Applicant: **LG DISPLAY CO., LTD.**, Seoul (KR)

(72) Inventors: Dal Jae Lee, Seoul (KR); Su Chan

Kwon, Seoul (KR)

(73) Assignee: LG Display Co., Ltd., Seoul (KR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 73 days.

(21) Appl. No.: 14/584,605

(22) Filed: Dec. 29, 2014

(65) Prior Publication Data

US 2015/0257289 A1 Sep. 10, 2015

(30) Foreign Application Priority Data

Mar. 7, 2014 (KR) 10-2014-0027403

(51) Int. Cl.

#05K 5/02 (2006.01)

#05K 5/00 (2006.01)

G09F 9/30 (2006.01)

G06F 1/16 (2006.01)

#05K 1/02 (2006.01)

#04M 1/02 (2006.01)

(52) U.S. Cl.

(10) Patent No.: US 9,603,271 B2

(45) **Date of Patent:** Mar. 21, 2017

(58) Field of Classification Search

CPC combination set(s) only.

See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

6,377,324 B1 * 4/2002 Katsura G02F 1/133305 349/58 6,577,496 B1 * 6/2003 Gioscia G06F 1/1616 345/156

(Continued)

FOREIGN PATENT DOCUMENTS

CN 101681183 A 3/2010 CN 101689066 A 3/2010 (Continued)

Primary Examiner — Lisa Lea Edmonds (74) Attorney, Agent, or Firm — Birch, Stewart, Kolasch & Birch, LLP

(57) ABSTRACT

A foldable display apparatus including a display panel configured to include a display area including a first display area, a second display area, and a bending area, a first panel supporting member configured to support a first area of the display panel corresponding to the first display area, a second panel supporting member configured to support a second area of the display panel corresponding to the second display area, and a folding part connected between the first and second panel supporting members to overlap the bending area and configured to guide the display panel for the display panel to be folded or unfolded to a plane state with respect to the bending area. The folding part adjusts a distance between the first and second panel supporting members for the display panel to be folded or unfolded.

14 Claims, 4 Drawing Sheets

